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ABSTRACT

Using data from the 1960 and 1970 United States Censuses, annual estimates of age-specific fertility rates by educational attainment of women for the period 1945 through 1969 are analyzed. These estimates allow annual examination of the extent to which various educational subgroups have participated in recent fertility trends. The sample population was divided into five age groups from 15 to 44 years and five educational levels from junior high through college. The single pervasive finding is that fertility increased during the 1950's and decreased in the 1960's for virtually every group examined. The increase in fertility during the 1950's was greater among younger women and among better educated women; and the decline in fertility during the 1960's was largest among women who attended but did not complete high school or college. With few exceptions, the pattern of fertility rise and decline over the two decades was similar for black and white women of comparable educational attainment. (Author/DE)

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RECENT TRENDS IN FERTILITY DIFFERENTIALS AMONG EDUCATIONAL GROUPS

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ABSTRACT

This paper, using data from the 1960 and 1970 United States censuses, presents annual estimates of age-specific fertility rates by educational attainment of women for the period 1945-1969. These estimates allow, for the first time, examination on an annual basis of the extent to which various educational subgroups have participated in recent fertility trends. Checks are made on the accuracy of the rates and various procedures are used to minimize whatever biases are found. The most pervasive finding is that fertility increased during the 1950s and decreased during the 1960s for virtually every group examined. It is also found that the increase in fertility during the 1950s was greater among younger women and among better-educated women; and the decline during the 1960s was largest among women who attended but did not complete high school or college.

RECENT TRENDS IN FERTILITY DIFFERENTIALS AMONG EDUCATIONAL GROUPS

Fertility history in the United States since World War II has been dominated by two important and long-lasting trends: (1) a rise in fertility beginning during the late 1940s and lasting through 1957, and (2) a decline in fertility beginning in the late 1950s and continuing through the time of this writing. With existing vital statistics data it is possible to determine the demographic components of this rise and subsequent decline. For example, Freedman (1962) has concisely described the rise as follows:

> We can see now from the official statistics to 1958 that the baby boom has had four major components: first, in the early stages, a making up of babies postponed in the depression; second, a shift in the timing of marriages and births to earlier stages independently of the changes in completed family size; third, a significant increase in the proportion marrying; and fourth, an apparent shift from small to moderate size for completed families among the married.

However, our ability to examine the social components of the rise and decline in fertility has been severely hampered by the lack of relevant data provided by published vital statistics. Information has not been collected and published on the social characteristics of mothers, with the exception of race.

This paper, using the own children technique and data from the 1960 and 1970 censuses, presents annual estimates of age-specific fertility rates by educational attainment of women for the period 1945-1969. These estimates allow, for the first time, examination on an annual basis of the extent to which various educational subgroups

participated in the so-called baby boom and the subsequent fertility decline. The emphasis throughout will be on describing differentials in the trends; the urge to provide post-factum explanations will be resisted as much as possible.

Methodological Considerations

The technique used to obtain the fertility estimates presented here utilizes the fact that most children live with their mothers. Given age of children, age of women, and year of census, it is possible to calculate annual fertility rates for various years preceding the census (Grabill and Cho, 1965; Cho, 1971; Retherford and Cho, 1974; Rindfuss, 1974). There are four basic assumptions of this method: (1) that age of children and age of women are correctly reported; (2) that all children reside with their mothers; (3) that mortality is negligible for women and children; and (4) that all women and children are covered by the census. It has been shown elsewhere (Rindfuss, 1974) that even when these assumptions are not met, the own children technique tends to accurately estimate trends--even though the levels may be too low or too high. The trends tend to be accurate because of the further assumption that levels of age misstatement, underenumeration, children not living with their mothers, and mortality remain comparatively stable over time.

The extension of the method to the estimation of annual fertility rates for various educational groups requires the further assumption that the education of women at the time of the census is applicable to

each of the preceding years for which fertility rates are being estimated. In the present paper, we have estimated fertility rates for each educational group for each of fifteen years preceding the census. Since two successive decennial censuses are being used, there is a five-year period (1955-1959) for which two estimates are available for each group and rate--thus providing an internal check on the consistency of the estimates. It should be noted that consistency here addresses the effect of compositional changes but does not guarantee accuracy. The estimates are independent in that they are obtained from two different censuses, but both sets of estimates are obtained by the same methodology.

Table 1 shows the ratio of the 1960 census estimates to the 1970 census estimates for the five-year overlap period for each educational group for all women. Tables 2 and 3 show similar ratios for whites and blacks, respectively. (Black rates for women with 13-15 and 16+ years of education have not been computed because the numbers of women involved are too small to produce reliable rates. Also, rates have not been computed for women with 0-4 years of education--the rationale for this will be discussed later.) Overall, the two sets of estimates are remarkably close. Generally the two estimates are within 10 percent of one another, and typically within 5 percent. The major exceptions are the fertility of 15-19-year-olds, and, to a lesser extent, that of 20-24-year-olds. For the less-educated groups, the ratio of the 1960 census estimates to the 1970 census estimates for 15-19-year-olds decreases from 1955 to 1959. For the better-educated groups the pattern is reversed.

Table 1. Ratio of 1960 Census Estimates to 1970 Census Estimates for Five-Year Overlap (1955 to 1959): Total

Education Group and Years Being Compared	Age-Specific Fertility Rate Comparisons						Total Fertility Rate Comparisons
	15-19	20-24	25-29	30-34	35-39	40-44	
5-8							
1959	.68	1.05	1.04	1.07	1.04	.88	.96
1958	.93	1.06	1.08	1.08	1.02	1.04	1.04
1957	.99	1.06	.99	1.00	.95	1.09	1.01
1956	1.08	1.12	1.00	.98	.98	.95	1.05
1955	1.13	1.06	1.03	1.03	.92	.83	1.04
9-11							
1959	.44	1.01	1.10	.97	1.03	1.01	.90
1958	.51	1.08	1.06	1.08	1.01	1.01	.94
1957	.61	1.04	1.04	1.00	1.02	1.03	.94
1956	.82	1.06	1.05	1.02	.96	1.07	.99
1955	.93	.99	.95	1.08	.97	.92	.98
12							
1959	1.65	1.04	1.02	1.05	1.05	.96	1.03
1958	1.23	1.04	1.04	1.07	1.05	.95	1.06
1957	1.02	1.05	1.00	1.00	.97	.97	1.01
1956	.87	1.02	1.02	1.02	1.00	.88	1.00
1955	.88	1.06	1.04	1.05	1.00	1.15	1.03
13-15							
1959	1.23	.78	1.02	.99	1.05	1.07	.94
1958	.91	.87	.95	1.01	1.02	.93	.94
1957	.65	.96	1.04	1.02	.99	.80	.98
1956	.57	.95	1.04	1.04	1.02	.86	.98
1955	.43	1.00	.93	.95	1.03	1.06	.95
16+							
1959	8.92	1.37	1.08	1.13	1.26	.83	1.27
1958	2.78	1.17	1.07	1.07	1.04	1.09	1.11
1957	1.56	.97	1.06	1.06	1.02	.88	1.04
1956	.73	.98	1.04	.97	1.00	1.32	1.01
1955	.50	.85	.98	1.05	1.02	1.02	.97

Table 2. Ratio of 1960 Census Estimates to 1970 Census Estimates for Five-Year Overlap (1955 to 1959): Whites

Education Group and Years Being Compared	Age-Specific Fertility Rate Comparisons						Total Fertility Rate Comparisons
	15-19	20-24	25-29	30-34	35-39	40-44	
5-8							
1959	.77	1.09	1.04	1.06	1.00	.84	.99
1958	1.02	1.06	1.06	1.06	1.04	1.10	1.05
1957	1.06	1.08	.98	.93	.98	1.06	1.02
1956	1.12	1.13	1.01	1.01	.96	.98	1.06
1955	1.15	1.05	1.04	.99	.93	.83	1.04
9-11							
1959	.44	1.02	1.08	.98	1.04	1.05	.90
1958	.51	1.11	1.06	1.09	1.07	1.06	.96
1957	.61	1.05	1.04	1.00	1.06	.95	.94
1956	.85	1.07	1.06	1.04	1.00	1.05	1.01
1955	.97	1.01	.98	1.08	.96	.92	1.00
12							
1959	1.78	1.04	1.02	1.05	1.05	.97	1.10
1958	1.24	1.05	1.04	1.06	1.03	.96	1.06
1957	1.03	1.06	1.01	1.01	.96	.97	1.02
1956	.88	1.01	1.03	1.02	1.00	.91	1.00
1955	.90	1.07	1.04	1.06	1.00	1.19	1.04
13-15							
1959	1.35	.78	1.00	1.00	1.03	1.05	.94
1958	.97	.88	.94	1.01	1.00	.95	.94
1957	.69	.95	1.04	1.02	.98	.79	.98
1956	.58	.96	1.07	1.03	1.01	.85	.99
1955	.45	.99	.94	.95	1.01	1.02	.95
16+							
1959	10.36	1.39	1.07	1.15	1.24	.79	1.27
1958	3.35	1.17	1.07	1.06	1.07	1.02	1.11
1957	1.66	1.00	1.06	1.08	1.01	.91	1.05
1956	.69	.97	1.03	.99	1.00	1.17	1.00
1955	.51	.86	.98	1.05	1.00	.97	.97

Table 3. Ratio of 1960 Census Estimates to 1970 Census Estimates for Five-Year Overlap (1955 to 1959): Blacks

Education Group and Years Being Compared	Age-Specific Fertility Rate Comparisons						Total Fertility Rate Comparisons
	15-19	20-24	25-29	30-34	35-39	40-44	
5-8							
1959	.42	.87	.99	1.08	1.10	.95	.84
1958	.69	1.02	1.08	1.12	.95	.93	.96
1957	.78	.98	1.01	1.22	.79	1.22	.97
1956	.89	1.06	.95	.86	1.00	.86	.95
1955	1.04	1.05	.96	1.14	.88	.84	1.01
9-11							
1959	.50	.99	1.22	1.00	1.00	.82	.92
1958	.54	.97	1.07	1.09	.82	.86	.89
1957	.63	.97	1.05	1.03	.84	1.34	.92
1956	.71	.99	1.01	.91	.83	1.22	.91
1955	.78	.90	.86	1.09	1.01	.94	.90
12							
1959	.83	.98	.98	.99	.96	.75	.95
1958	1.12	1.01	1.15	1.22	1.23	.75	1.10
1957	.93	.84	.92	.89	.96	.95	.90
1956	.88	1.07	.96	1.21	1.18	.73	1.03
1955	.76	.92	1.00	.83	.94	.94	.91

The primary reason for the lack of agreement of the rates of the 15-19 age group is that for most women educational attainment is changing at ages 15-19, and thus violating our assumption. For example, the rates for 1959 from the 1960 census are based on women aged approximately 15 3/4 to 19 3/4 at time of census; thus, many of these women have not yet completed their education. The rates for 1959 from the 1970 census are based on women aged approximately 25 3/4 to 29 3/4; thus, their educational attainment is comparatively fixed. For the less-educated group, the estimates from the 1960 census for the most recent years are based on two types of women: (1) women who are not in school and will remain in the given educational classification, and (2) women who are in school and will eventually be in a higher educational classification. Since women in the latter group have lower fertility at ages 15-19 than women in the former group, their inclusion has the effect of depressing the estimates from the 1960 census. Similarly, for the better-educated group, the estimates from the 1960 census for the most recent years are based on a subset of all women who will eventually be in that category: women who complete a given amount of education at a comparatively early age. Presumably, these women also begin childbearing at a comparatively early age; therefore, the estimates for the 15-19 age group from the 1960 census are somewhat inflated. If it is final, rather than current, educational attainment that is important with respect to fertility, then the somewhat paradoxical conclusion is reached that the estimates for fertility rates of the 15-19 age group are more accurate for the years more distant from the census than for the years closer to the census.

In this paper, in order to minimize those biases, whenever fertility rates for women aged 15-19 or 20-24 are being examined, the following steps have been taken: (1) the rates for the two years closest to the census (1968-1969 for the 1970 census and 1958-1959 for the 1960 census) have been eliminated; and (2) for the three-year period for which two estimates are available (1955-1957), the estimates from the 1960 and 1970 censuses have been averaged. This procedure has the unfortunate disadvantage of truncating the series at 1967 instead of 1969. Whenever fertility rates for women aged 15-19 and 20-24 are not being used, the series has been extended the full twenty-five years and the two estimates for the five-year overlap period have been averaged.

It should also be noted that in Tables 1, 2, and 3 the ratios tend to be greater than unity more often than not. In other words, there is a tendency for the estimates from the 1960 census to be slightly larger than the estimates from the 1970 census. The principal reason probably is children leaving the household. The 1960 estimates for the overlap period are based on children aged 0-4; the 1970 estimates are based on children aged 10-14. Children aged 10-14 are slightly less likely to reside in the maternal household than children aged 0-4 (see Rindfuss, 1974).

Women with 0-4 years of education have been eliminated from the analysis for a number of reasons. First, they constitute a very small proportion of women in the childbearing ages--approximately 2 percent in 1970. Second, a nonnegligible proportion are institutionalized

and, therefore, presumably not exposed to the whole range of fertility decisions and actions. For example, in 1970, 0.2 percent of all women aged 25-34, but 6 percent of women aged 25-34 with 0-4 years of education, resided in institutions. Finally, we suspect that census data on own children would be most deficient for women with 0-4 years of education.

It should also be noted that the educational classification used here for women may not be the educational attainment of these women when they were having their children. For the most part, the educational classification used here is probably best thought of as "permanent education." This statement is qualified because, undoubtedly, some of the women will go on to attain more education (see Davis and Bumpass, 1974).

The reader will notice that the actual estimated annual fertility rates and the numbers of women on which they are based are not shown in this paper. Space considerations were the primary reason for this omission. These actual rates will be made available in a subsequent paper.

Overview

This paper examines differential trends by education in period fertility rates from 1945 through 1969--and, indeed, there are some. However, before getting lost in the differentials, it should be emphasized that for virtually every educational, racial, and age group examined, fertility rates increased during the 1950s and decreased

during the 1960s. There are differences in the levels, the slopes, and the timing of the peaks; but the dominant picture is that of a rise followed by a decline. The only major exception found is among older, less-educated, rural women. For these women there was an actual decrease in fertility during the 1950s; this decline continued throughout the 1960s. This exception will be treated in another paper.

We do not claim to know what factors caused the rise and the subsequent decline in fertility, nor do we claim that it was the same factors operating on each educational group. The possibilities are numerous: postponement of births because of the depression and the war; the relative prosperity of the 1950s; the glorification of children by the media; the so-called religious revival; the upward, then downward, pressure of military draft regulations; the introduction of the pill, I.U.D., and other contraceptive methods; increased media concern about the effects of population growth; the entry of "baby boom" cohorts into the job market; the women's movement; and the expansion of the organized delivery of family planning services. However, the fertility estimates presented here clearly indicate that the same basic trend has been exhibited by every educational, racial, and age group.

In a sense, this represents unprecedented and sweeping social change. In an area of such individual and societal importance as fertility, there was a rise and then a decline for every subgroup examined (with the one exception already noted). The societal

consequences of this pervasive change in period fertility rates are enormous and affect virtually every major social institution. The educational system had to substantially expand both its physical plant and its faculty; and now, having expanded, it is faced with ever smaller entering cohorts. The marriage market has also experienced shocks. During the 1960s there were an insufficient number of eligible males of the appropriate age. In the future, because of the declining birth rates, we can expect the reverse to occur: an insufficient number of females of the appropriate age. Similarly, the economy, the housing market, the health care facilities, and other aspects of society have had to and will have to cope with larger, then smaller, cohorts. Furthermore, the sheer size of the United States population is substantially larger now than it would have been in the absence of the baby boom--and this effect on growth will continue indefinitely.

However, there is also a sense in which the postwar pattern of fertility represents minor changes. On average, at the individual level, these fertility trends represent the difference between having two children and having three children. From the perspective of the individual couple, this may be viewed as a minor difference (see Goldberg and Coombs, 1963)--even though the societal consequences are substantial. [Note, however, that many of the changes that occurred were not a shift from two to three children; but rather shifts in proportion married, proportion having a first child, and other parity progressions (see Ryder, 1969).] The remainder of this paper discusses differentials in period fertility rates from 1945 to 1969.

Educational Differentials

Total fertility rates (conventionally defined) for the period 1945-1967 are shown in Figure 1 for five educational groups. The first difference to be noted in examining Figure 1 is that the peak period fertility occurred somewhat later for less-educated women than for better-educated women. Those who finished high school and those who attended college tended to have their highest fertility around 1957. Women who did not complete high school had their peak fertility some two to three years later.

Figures 2 and 3 show total fertility rate analogs for women aged 15-29 and 30-44, respectively. These rates are calculated in the same manner as a conventional total fertility rate, except that the age limits are 15-29 or 30-44 instead of 15-44. The sum of the fertility rate for women aged 15-29 and the fertility rate for women aged 30-44 is equal to the conventional total fertility rate.

The tendency for the peak period fertility to occur somewhat later for less-educated than for better-educated women is found for both older and younger women. Women with only a grade school education consistently are the latest to begin a sustained decline in fertility. Among high school graduates and those who attended college, a turning point was reached during the 1950s.

With respect to the rise in fertility from 1945 through the late 1950s, the largest relative (and absolute) increase in the total fertility rate was experienced by high school graduates--an increase of approximately 70 percent. The smallest increase (48 percent) was

Figure 1.

Total fertility rates for five educational groups: 1945-1967.

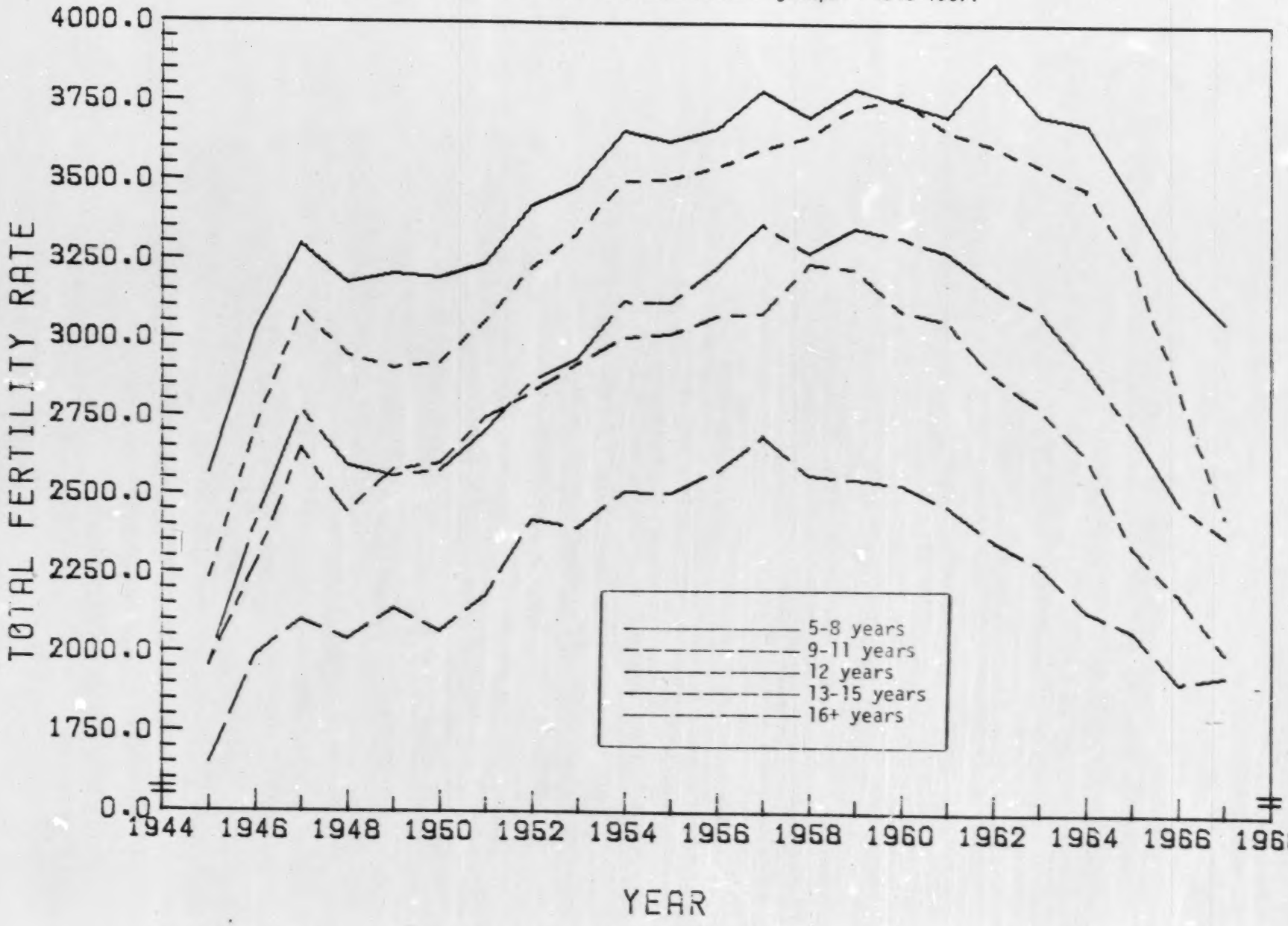

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Figure 2.

Fertility rates for women aged 15-29 for five educational groups: 1945-1967.

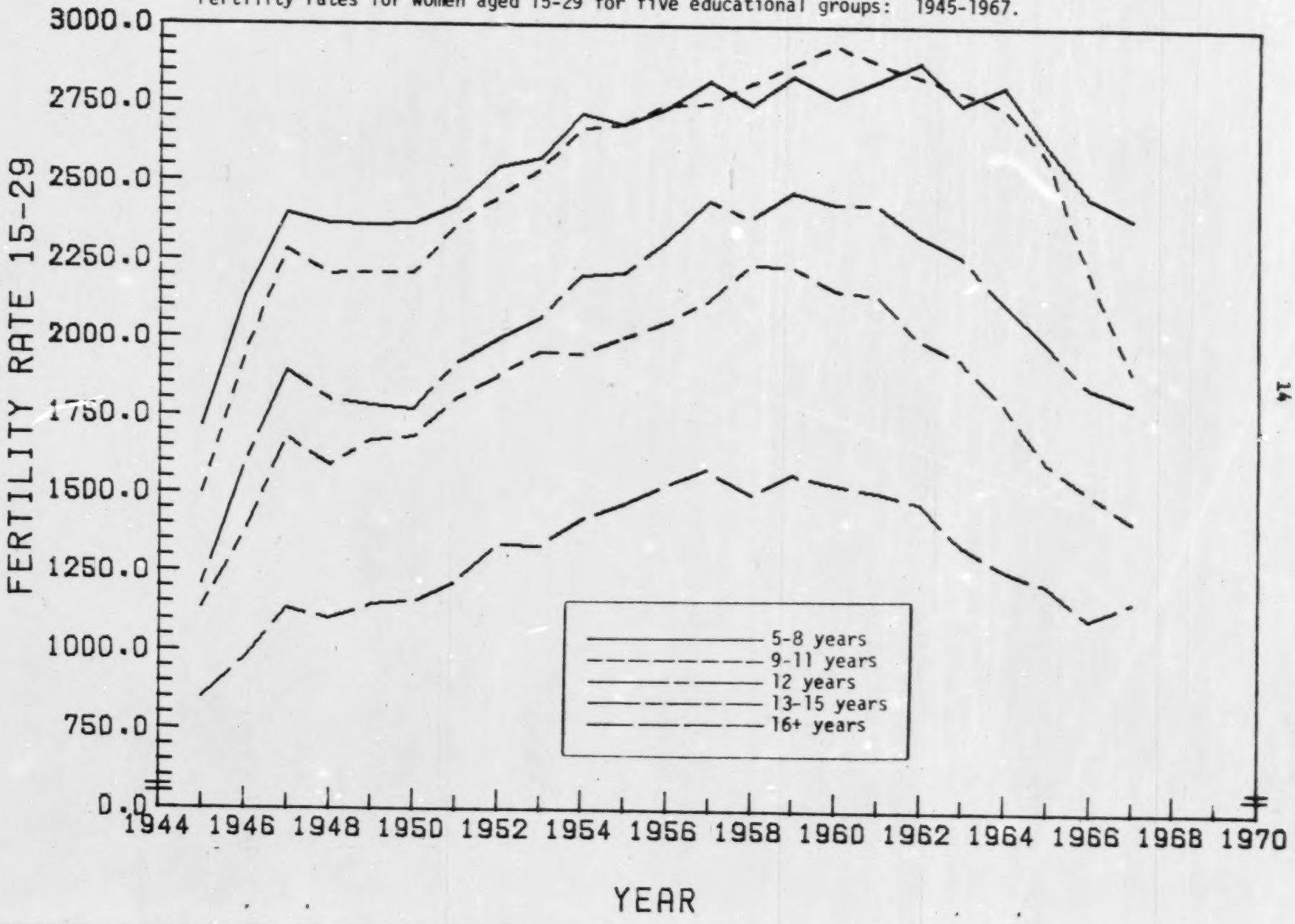

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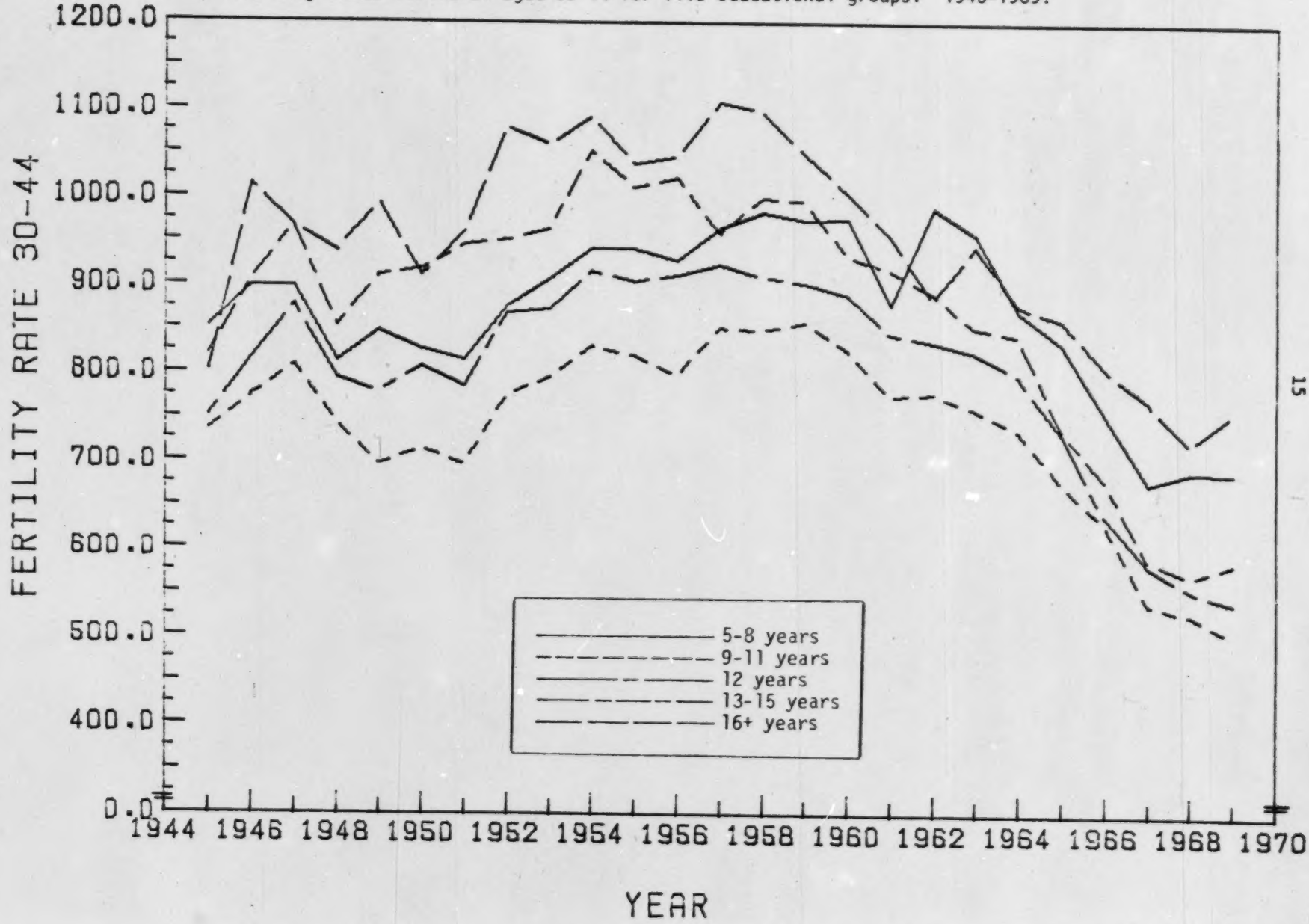
Figure 3.

Fertility rates for women aged 30-44 for five educational groups: 1945-1969.



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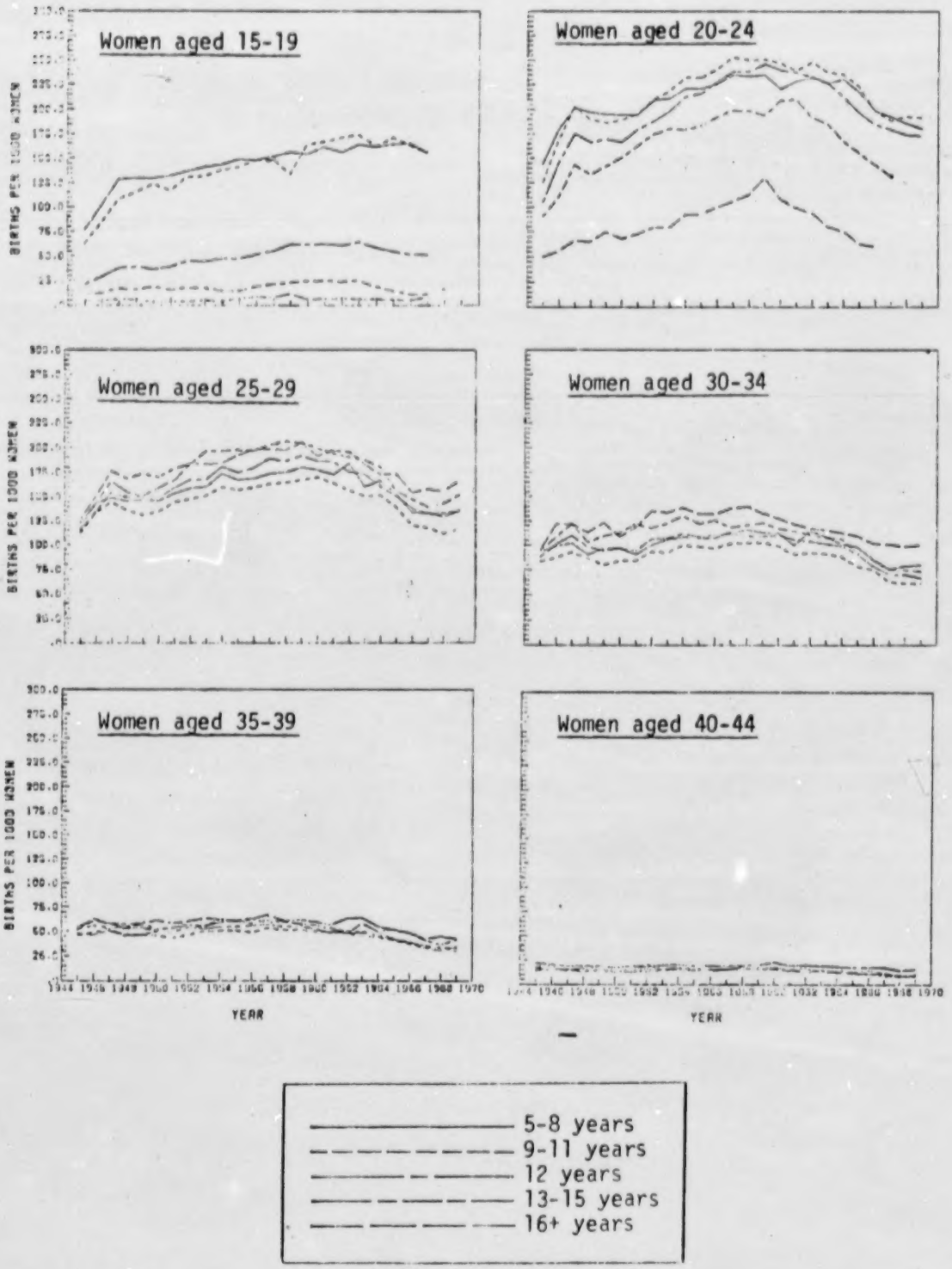
recorded for women who never attended high school. A similar pattern was displayed by younger women. The largest increase was recorded for high school graduates--whose fertility more than doubled (an increase of 102 percent). The fertility rates of women with 9-11, 13-15, and 16+ years of education increased by 84, 87, and 87 percent, respectively; and the smallest increase (64 percent) was found among women who did not attend high school. Among older women, the size of the relative increase tended to be directly related to level of educational attainment--ranging from 13 percent for women who did not complete high school to 38 percent for college graduates. In every educational group, the amount of the relative increase was substantially larger among younger women than among older women--generally about three times as great. Furthermore, the absolute amount of the increase tended to decrease with age (see Figure 4). Thus, the substantial rise in fertility during the 1950s was most noticeable among younger women and better-educated women. The large increases among the better-educated women reinforce the perspective that the baby boom was essentially voluntary and that its explanations are necessarily social.

A further indication of the pervasiveness of modern fertility trends can be seen by examining the years immediately after World War II. For all educational groups there was a sharp increase in fertility immediately after the war, followed by a slight decline, which was subsequently followed by a more gradual increase. Much of this immediate postwar rise, of course, was the result of the making up of births postponed during the war and the depression.

Figure 4.

Age specific fertility rates for five educational groups: 1945-1969.



For the more recent decline in fertility, 1957 has been chosen (somewhat arbitrarily) as the beginning of the decline; this decline will be examined for the period 1957-1967. The decline in the total fertility rate (see Table 4) shows a somewhat curious pattern: The decline was largest for high school dropouts and college dropouts. If the decline is separated into that occurring to younger women (under age 30) and that occurring to older women (aged 30-44), and also separated by time period (1957-1962 and 1962-1967), it can be seen that the pattern of the largest declines occurring among high school or college dropouts is found only among younger women and only in the 1962-1967 period. The rate of decline in this more recent period for high school and college dropouts was five to twelve percentage points greater than the decline for high school or college graduates. For younger women in the earlier period (1957-1962), the rate of decline tended to be directly related to educational attainment; and women with 5-8 and 9-11 years of education actually registered a slight increase in fertility. For older women in either period, there was no strong or consistent relationship between education and rate of decline.

Also, the decline in fertility began substantially earlier among the better-educated women (see Figures 1, 2, and 3, and Table 4). Women with less than a high school education experienced very little change in level of fertility between 1957 and 1962. Among college-educated women, on the other hand, over two-fifths of the decline from 1957 to 1967 occurred in the first five years of the period.

Table 4. Percent Decline in Total Fertility, Fertility 15-29, and Fertility 30-44 in Periods 1957-1967, 1957-1962, and 1962-1967, and Percent of the 1957-1967 Decline That Occurred in 1962-1967, by Educational Group

Rate and Educational Group	Percent Decline in Fertility Rate			Percent of 1957-1967 Decline That Occurred in 1962-1967
	1957-1967	1957-1962	1962-1967	
Total fertility				
5-8 years	19	-2[a]	21	112
9-11 years	32	0	32	101
12 years	29	6	25	80
13-15 years	35	6	30	83
16+ years	28	12	18	56
Fertility 15-29				
5-8 years	15	-2	17	115
9-11 years	31	-3	33	110
12 years	26	4	23	83
13-15 years	33	6	29	83
16+ years	26	7	21	75
Fertility 30-44				
5-8 years	30	-2	32	108
9-11 years	37	9	31	76
12 years	37	9	30	75
13-15 years	39	7	34	81
16+ years	31	20	13	34

[a]Minus sign indicates an increase.

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The fact that in the 1957-1962 period the rate of fertility decline was directly associated with education conforms in general with the concept of diffusion. This is supported by the fact that the decline began earlier among better-educated women. Whether the deciding factors were changes in fertility preferences or in the ability to realize these preferences, the changes were apparently implemented "from the top down."

The pattern found in the recent period for younger women is more unusual. Even though this period (1962-1967) was characterized by increased availability and use of effective contraception (Ryder, 1972; Westoff, 1972; Rindfuss and Westoff, 1974), we suspect that the explanation for the greater decline in the dropout categories results from changes in tastes or preferences rather than changes in contraceptive technology or availability. There is no apparent reason why contraceptive improvements would be more readily adopted by or have a greater impact on the fertility of women who did not complete high school or college than on the fertility of those who did. Although the educational categories are not comparable to those used here, the available evidence on the adoption of the pill and I.U.D. suggests that it was directly related to education (Ryder, 1972).

Why then was the change in tastes, preferences, or motivations of young people greater among those who left school? Of course, the answer is unknown; but the temptation to speculate is impossible to resist. During the period in question a number of social and economic factors might have exerted downward pressure on fertility.

It is also likely that this "pressure" was greater on those who did not finish high school or college than on those who did.

First, during this period (1962-1967), the so-called marriage squeeze was at its peak (Akers, 1967); that is, there were not a sufficient number of eligible males relative to the number of eligible females in the population. It is our suspicion that when competition for husbands is intensified, women who have not completed high school or college are at a disadvantage vis-a-vis their contemporaries who have. Thus, one would expect a greater relative rise in age at marriage and a greater relative decline in the proportion marrying among high school and college dropouts; this would be accompanied by a greater relative decline in fertility. Second, among high school and college dropouts who did marry, we would expect a greater proportion (than of women who finished) to marry males who were themselves high school or college dropouts. During this period there was an expansion of the armed forces. Men who did not complete high school or college would have been more likely to be drafted than men who did; the draft probably also produced a downward effect on period fertility rates. And finally, this period has been characterized as one in which men entering the labor market found conditions less favorable than they had been a few years before (Easterlin, 1973); presumably, this effect would be greatest on those who had not finished high school or college. In short, the suggestion here is that some of the factors that might have been affecting fertility in the mid-1960s had their greatest effect on those who had not finished high school or college. While this

assertion has a certain amount of plausibility, we should hasten to add that, at present, empirical data is not available to test it.

Before examining differentials by race and education, one further point remains to be made: Throughout the period there was no consistent trend with respect to the expansion or contraction of fertility differentials by education. Perhaps the easiest way to see this is to examine Figure 1. At the beginning of the period, the fertility differential between women with 9-11 years of education and those with 12 years of education was comparatively small. This differential expanded in the early 1950s and was at its largest in the early 1960s. The differential subsequently contracted to the point that in 1967 the two groups were experiencing similar levels of fertility. Meanwhile, the fertility differential between women with 12 years of education and those with 13-15 years of education exhibited a substantially different pattern. The differential was quite small at the beginning of the period and remained small throughout most of the 1950s, then began to increase and reached its maximum at the end of the period.

The import of the fact that there is not a consistent trend in fertility differentials derives from the place differentials hold within demographic transition theory (Kiser [1969] addresses this issue). Simply put, the existence of fertility differentials has been described as a transitional phase of declining fertility. The theory is that the decline in fertility begins among better-educated women and spreads to less-educated women. As the transition progresses

toward its conclusion, fertility differentials become progressively narrower. The data presented here do not consistently support this theory in its most elementary form.

Racial and Educational Differentials

This section first describes the differential trends for whites, then describes those for blacks, and finally contrasts the two. Figure 5 shows the total fertility rate for whites for five educational groups from 1945 to 1967. By comparing Figures 5 and 1, it can be seen that, as would be expected, the differential patterns for whites are quite similar to those displayed by all women. The increase in fertility during the late 1940s and 1950s was largest for high school graduates (71 percent) and smallest for women with 5-8 years of education (45 percent).

The fertility rates for white women aged 15-29 and 30-44 are shown in Figure 6 for five educational groups. Again, the trends and differentials are similar to those displayed by the total population. For all educational groups, the increase in fertility was substantially (two to four times) larger for younger women than for older women (compare the upper and lower panels of Figure 6).

Between 1957 and 1967, period fertility rates declined for every white educational group; this decline was largest for high school and college dropouts (33 and 35 percent, respectively). We also note that the declines began earliest among the older and the better-educated women.

Figure 5.

Total fertility rates for five educational groups: whites, 1945-1967.

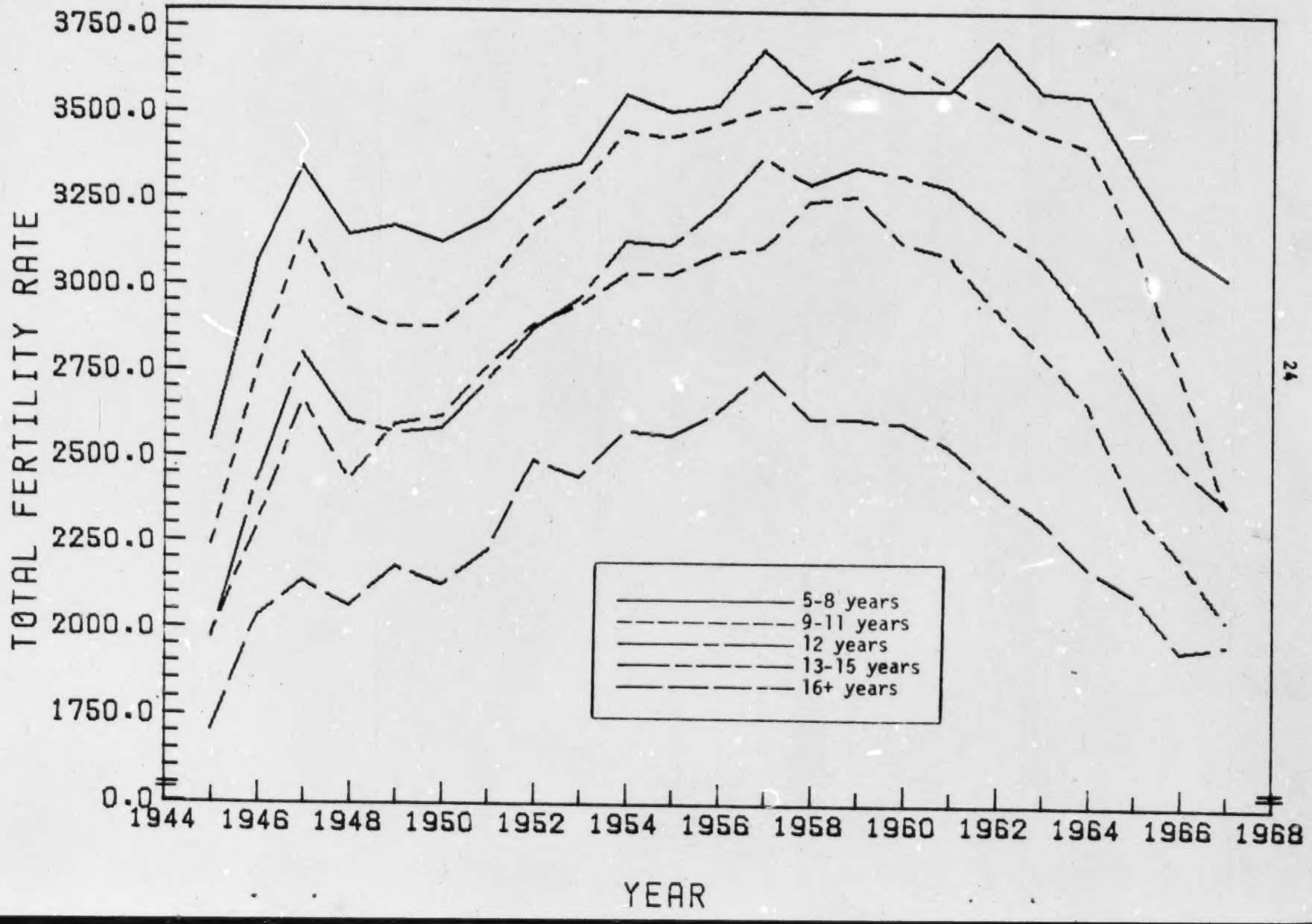

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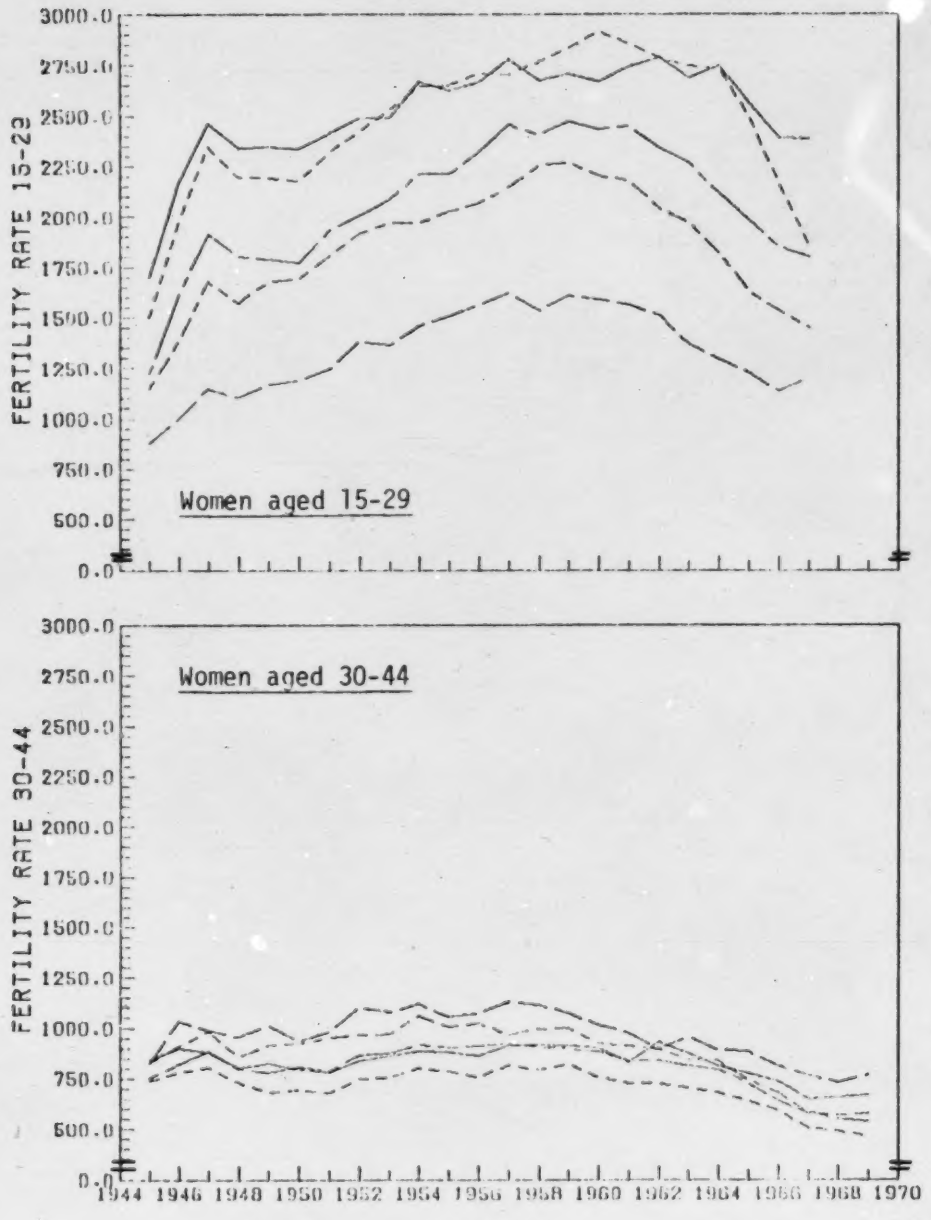
Figure 6.

Fertility rates for women aged 15-29 and aged 30-44

for five educational groups: whites, 1945-1969.



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For blacks the numbers of women were not sufficiently large to produce estimates for all five educational groups for the period 1945-1969; for this period estimates have been produced for the following groups: 5-8, 9-11, and 12 years. Even for these three groups, the numbers of women are only minimally large enough to produce reliable estimates--as evidenced by the saw-toothed patterns when the rates are plotted (for example, see Figure 9). For the more recent period (1955-1969), it is possible to combine all six 1-in-100 Public Use tapes of the 1970 census. This produces satisfactory trend estimates, as can be seen by the comparatively smooth lines in Figures 7 and 8.

For blacks, as for whites and the total population, fertility increased during the 1950s and decreased during the 1960s for every educational group (see Tables 5 and 6). The largest relative increase from 1945 to 1957 (90 percent) was recorded for black high school graduates, followed by 79 percent for black women with 9-11 years of education and 57 percent for women with 5-8 years of education. The increase for younger black women was approximately twice as large as the increase for older black women.

For the decline in fertility since the late 1950s, we have relied solely on data from the 1970 census, combining all six 1-in-100 samples. This allows examination of all five educational groups. Blacks do not precisely follow the pattern in which the largest relative declines are recorded for high school and college dropouts (Figure 7). The largest relative declines for the entire period were

Figure 7.

Total fertility rates for three educational groups: blacks, 1945-1967.

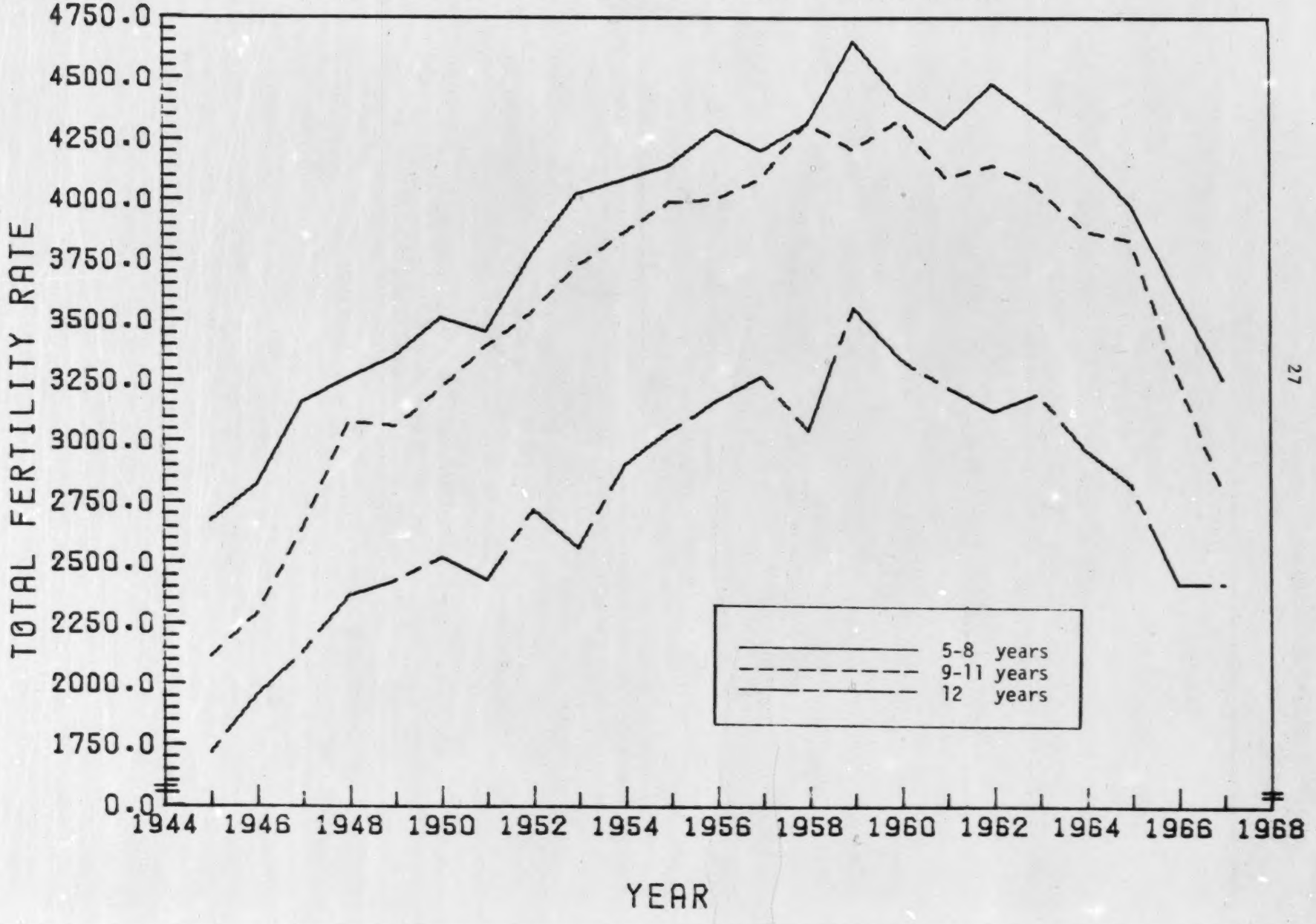

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Figure 8.

Fertility rates for women aged 15-29 and aged 30-44 for three educational groups: blacks, 1945-1969.

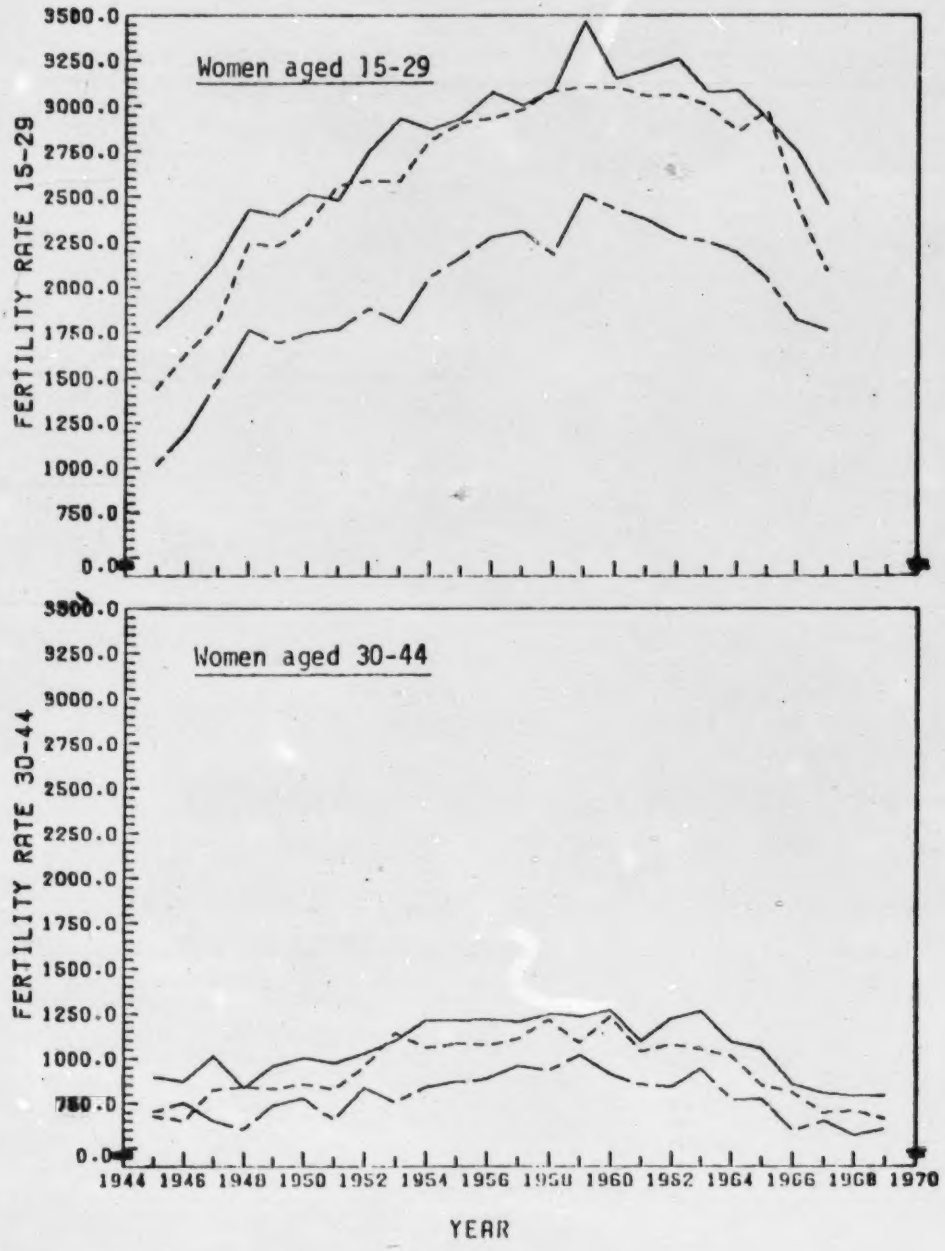

Table 5. Percent Increase in Total Fertility, Fertility 15-29, and Fertility 30-44 During the Period 1945-1957, by Educational Group and Race

Educational Group	Total Fertility		Fertility 15-29		Fertility 30-44	
	White	Black	White	Black	White	Black
5-8 years	45	57	64	69	8	34
9-11 years	57	79	80	108	10	63
12 years	71	90	102	128	22	36

Table 6. Percent Decline in Total Fertility, Fertility 15-29, and Fertility 30-44 During Periods 1957-1967, 1957-1962, and 1962-1967, and Percent of the 1957-1967 Decline That Occurred in 1962-1967, by Educational Group and Race

Rate and Educational Group	Percent Decline in Fertility Rate						Percent of 1957-1967 Decline That Occurred in 1962-1967	
	1957-1967		1957-1962		1962-1967			
	White	Black	White	Black	White	Black	White	Black
Total fertility rate								
5-8 years	18	28	1	2	18	27	105	93
9-11 years	33	32	0	3	32	30	100	90
12 years	30	26	6	4	25	23	78	86
13-15 years	35	37	6	4	31	34	84	89
16+ years	29	35	12	16	19	23	57	55
Fertility 15-29								
5-8 years	14	27	0	3	14	25	103	91
9-11 years	31	31	-3	2	33	30	110	94
12 years	27	25	5	3	23	22	82	88
13-15 years	32	39	5	8	29	33	85	78
16+ years	30	34	7	13	25	24	77	61
Fertility 30-44								
5-8 years	29	31	-2	1	30	31	107	98
9-11 years	38	36	11	7	30	32	71	81
12 years	37	30	9	6	31	26	76	81
13-15 years	39	32	7	-5	35	35	81	117
16+ years	28	36	20	19	10	21	28	47

[a]Minus sign indicates an increase.

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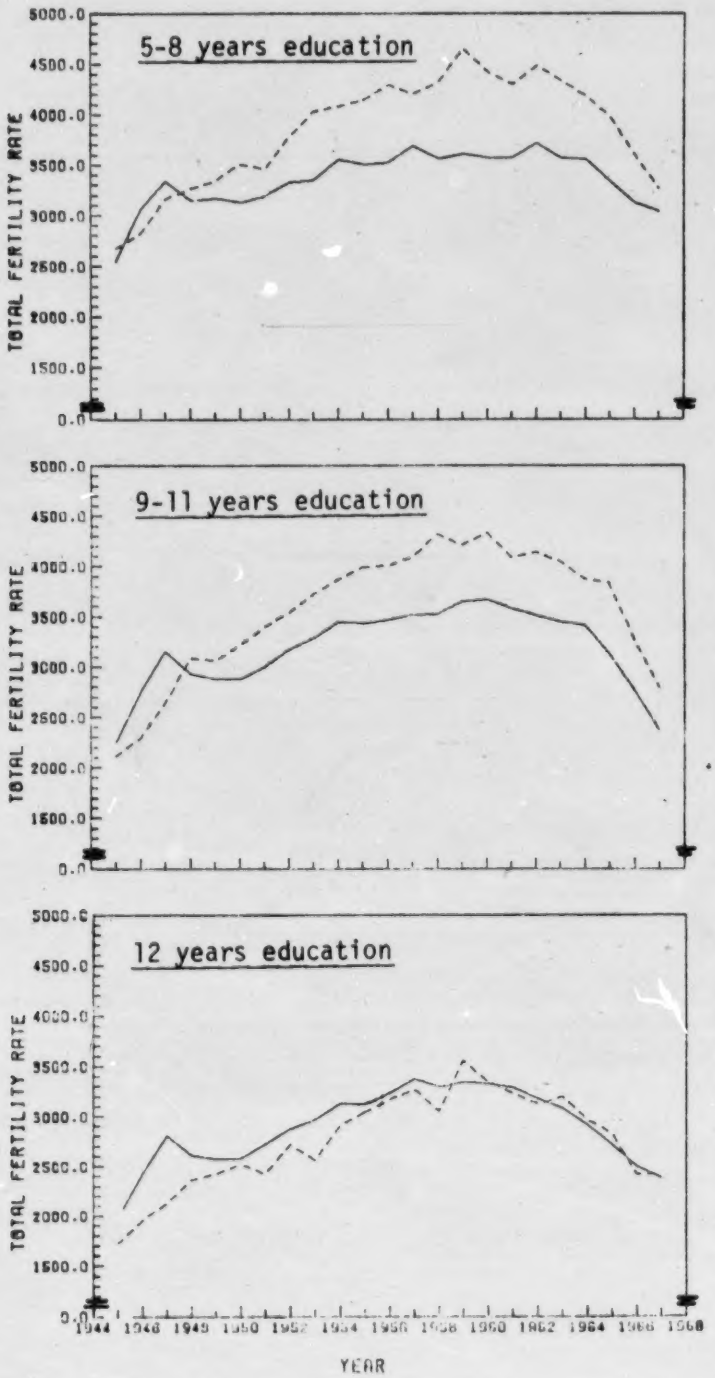
for college dropouts (37 percent) and college graduates (35 percent). High school dropouts had a decline of 32 percent. However, for younger women in the most recent period (1962-1967), the pattern found for whites and for the total population was also found for blacks (Figure 8). High school and college dropouts had larger relative declines (30 and 33 percent, respectively) than did women with a grade school education, high school graduates, or college graduates (25, 22, and 24 percent, respectively).

In order to contrast the trends for blacks and whites by education, we have replotted the lines showing both racial groups for each educational category (Figures 9-12). As before, we can examine the rise in fertility during the 1950s only for three educational groups. The immediate postwar rise (1945-1947) in the total fertility rate was substantially larger for whites than for blacks in each educational group (see Figure 9). However, for the entire period 1945-1957, the increase in the black total fertility rate was greater than the increase in the white total fertility rate for each educational group (Table 5). With the exception of the late 1940s, the black total fertility rate tended to be higher than the white rate. The largest differentials occurred among women with the lowest educational attainment. For high school graduates, the levels of the two rates are similar--but, as noted elsewhere (Rindfuss, 1974), the underestimate of the black rate is probably greater than the underestimate of the white rate.

For the entire period 1945-1957, the rate of increase in the

Figure 9.

Total fertility rates for whites and blacks by education: 1945-1967.



fertility of both younger and older women was greater among blacks than among whites. It can also be seen in Table 5 that the relative difference in rates of increase between whites and blacks was greater among older women than among younger women.

Figure 10 contrasts the total fertility rates of whites and blacks for the period 1955-1967 for five educational categories. In general, the white and black trends are similar within each educational group. This can also be seen by examining the top panel of Table 6. The rates of decline for whites and blacks tend to be close--overall and for the two five-year periods. The major exception is for women with 5-8 years of education. For these women there was a substantial contraction of the racial differential during the mid-1960s. Note that this contraction in the total fertility rate differential is primarily the result of the contraction among younger women (top panel of Figure 11). Among older women with 5-8 years of education, there was also a narrowing of the differential, but not nearly as much as among the younger women (top panel of Figure 12).

With few exceptions, the pattern of decline was also similar for blacks and whites for both younger and older women among the five educational groups. Even though fertility differentials by education were changing during the mid-1960s, the racial differentials within each educational group remained fairly constant. Thus, the factors responsible for the decline in fertility appear to have been interacting with education but not with race.

Figure 10.

Total fertility rates for whites and blacks by education: 1955-1967.

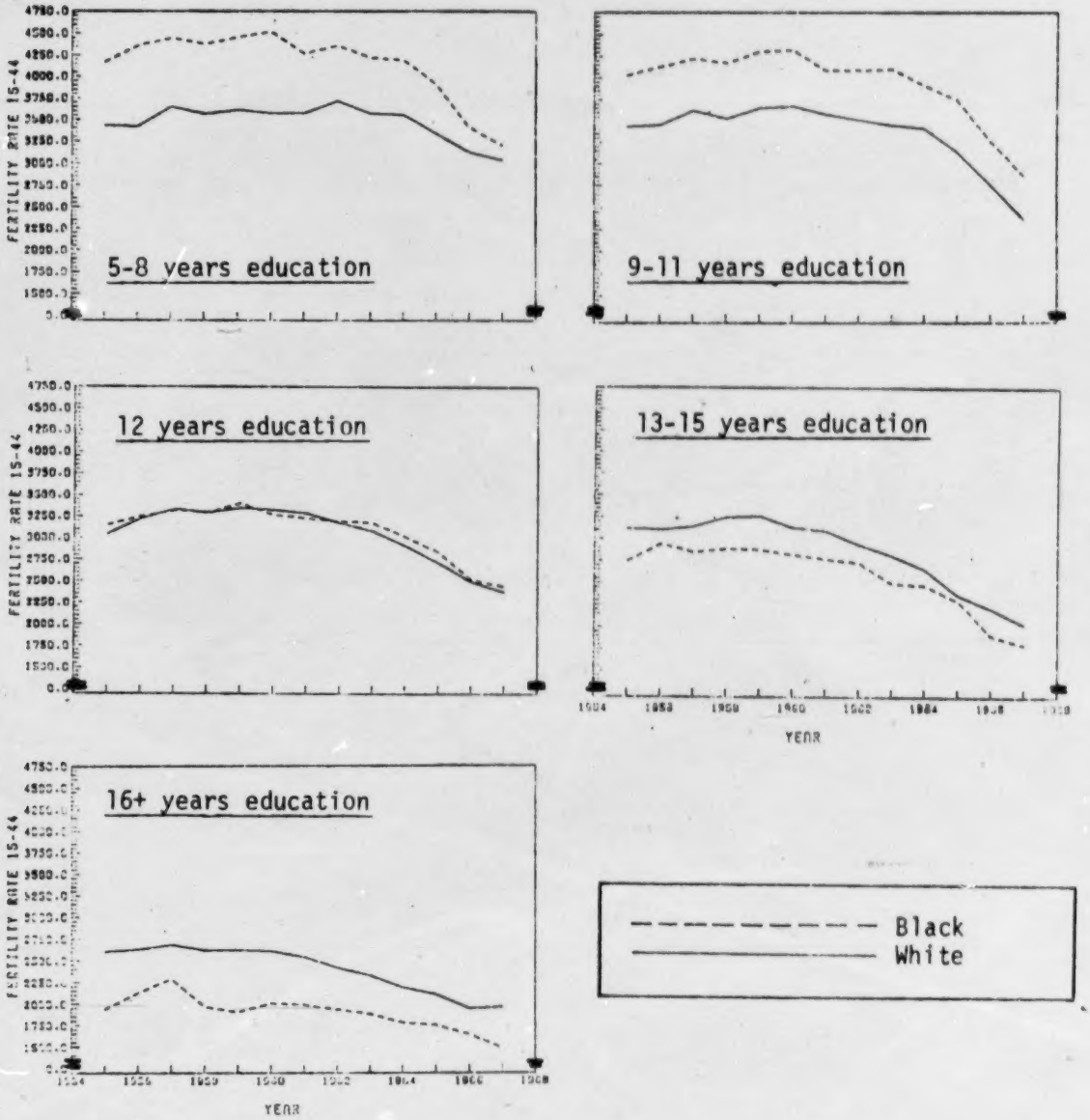


Figure 11.

Fertility rates for white and black women aged 15-29 by education: 1955-1967.

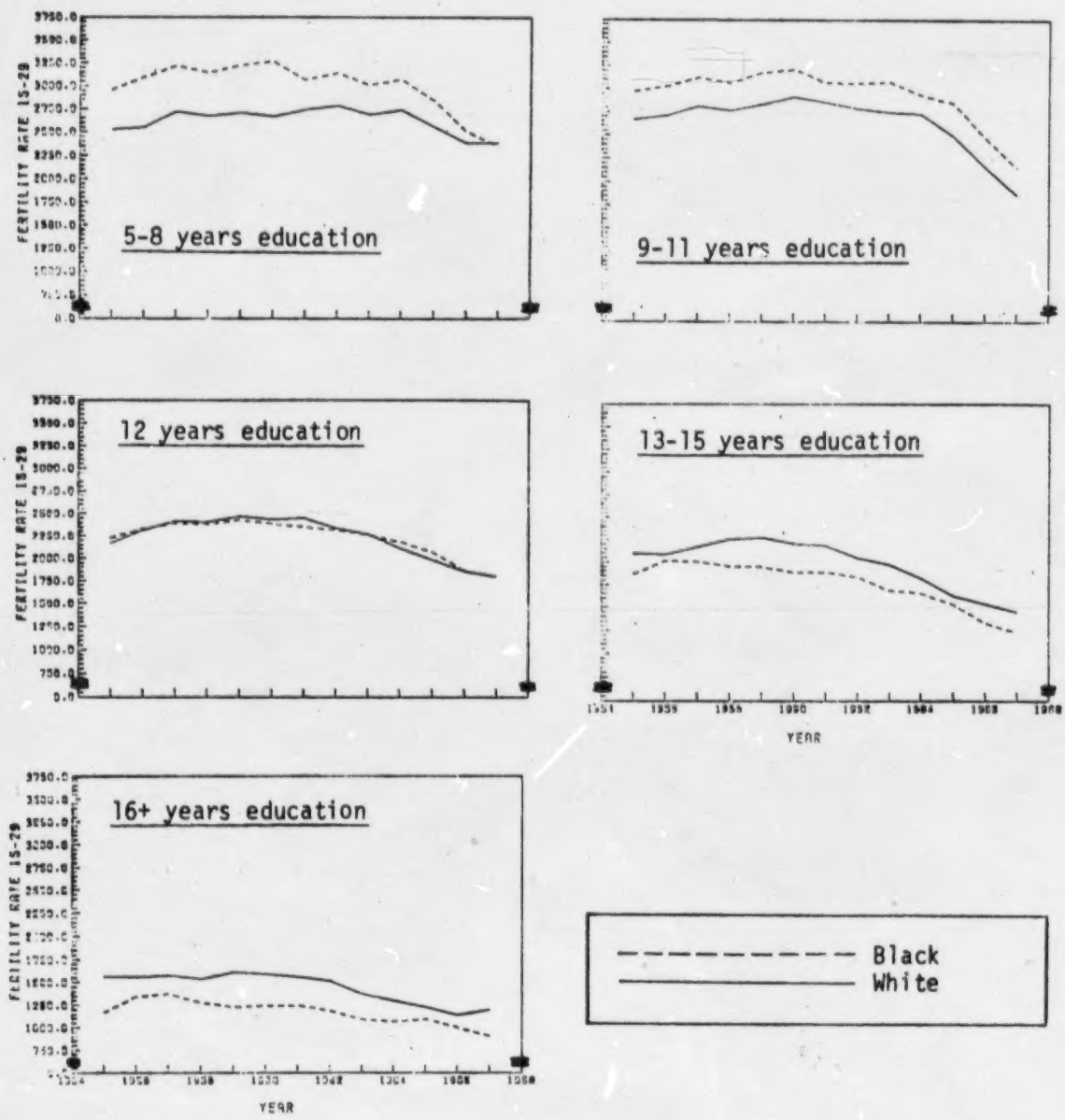
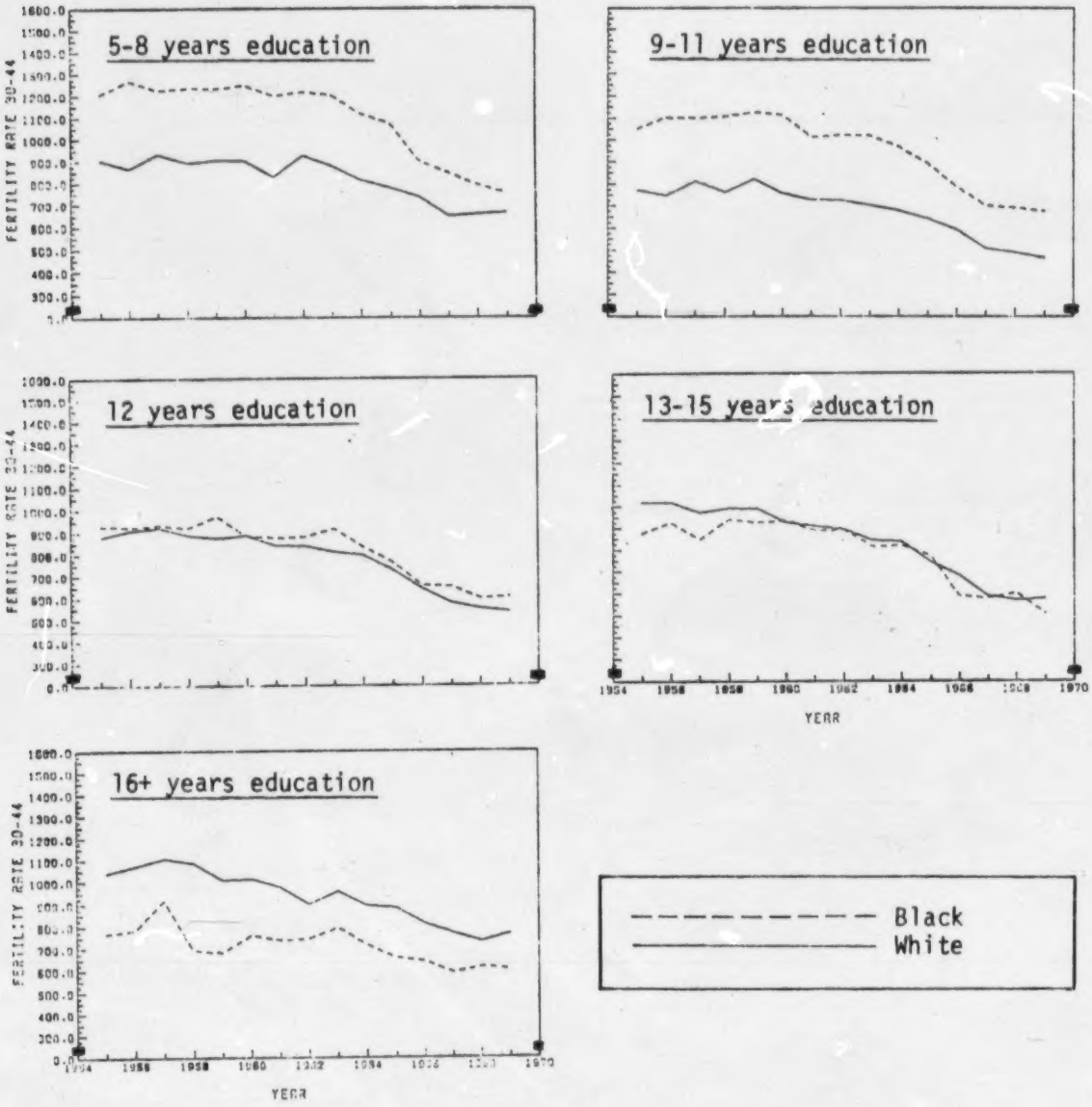


Figure 12.

Fertility rates for white and black women aged 30-44 by education: 1955-1969.



An examination of Figures 10, 11, and 12 also shows that racial differentials differ in magnitude and direction across educational groups. Among the less educated, blacks have higher fertility rates than whites; but among the better educated, the racial differential is reversed. (Again, it should be noted that differences between fertility levels based on own children estimates should be interpreted with the greatest caution.)

Summary

This paper has examined social components of fertility trends in the United States since World War II. Using data from the 1960 and 1970 censuses and the own children technique, annual fertility rates for various subgroups were analyzed. Checks on the internal consistency of these estimates suggested that they were suitably consistent--with the exception of rates for young women in various educational groups. This inconsistency was primarily the result of changes in educational attainment; steps were taken to minimize this potential bias. Because of the need for large numbers of women and because of the need for constancy in the independent variables, analysis was restricted to fairly broad social groups.

The single most pervasive finding here is that fertility increased during the 1950s and decreased during the 1960s for virtually every group examined. Although our research principally focuses on fertility differentials, the similarity in the observed trends for all groups cannot be overemphasized. For women with limited education

and college graduates, for whites and blacks, for younger and older women, the same basic trend in fertility has been observed.

The increase in fertility following World War II and continuing through the 1950s was greater among younger women and among better-educated women. This increase had two components: an immediate postwar increase (presumably the making up of postponed births) and a more gradual, yet sustained, increase lasting throughout most of the 1950s. Only among older, less-educated, rural women was an actual decrease in fertility found; this exception will be discussed in a subsequent paper.

The decline in fertility that occurred after 1957 accelerated appreciably in the latter part of the 1960s; more than two-thirds of the decline occurred in the second half of the period. This decline was largest for women who attended but did not complete high school or college. It is speculated that the more rapid decline among dropouts occurred because the fact that they were dropouts brought about greater pressures on themselves or their spouses from such factors as the so-called marriage squeeze, the expansion of the military draft, and the unfavorable labor market.

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